certain kinds and portions of their intricate terra-cotta fictile wares.

In conclusion, it is also worthy of remark that a knowledge of the process of modeling in clay upon forms seems to have been known to most all of the savage and barbarian nations of America who were acquainted with the art of pottery, and more especially to those of our American aborigines, who occupied the middle status of barbarism. Many of the beautiful earthenwares from the mounds of Louisiana, Missouri and those parts of our Western States at one time occupied by the mound-builders suggest the use of forms or shapes. Specimens of ancient water bottles from British Guiana and the (long-necked) bottle-shape jars and vases from the mounds of Indiana, Tennessee and Missouri in the William S. Vaux and Haldemann collections, prove the truth of these assertions.

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EDITORS' TABLE.

EDITORS: A. S. PACKARD, JR., AND E. D. COPE.

—— *E pur se muove.* The Philadelphia Academy has added two professors to its corps, and, it is said, will soon add a third. As the gentlemen selected are all capable, original investigators, important progress has thus been made. In fact, the organization adopted eight years ago may now be said to have the active support of the members of the academy.

The institution having at length acquired a center of vitality, new questions arise. Having escaped the Scylla of paralysis, it must avoid the Charybdis of being pressed into service which does

cept upon piece forms, and that the pieces modeled thereon were united during the semi-dry or green state. The clay balls in the interior of the legs and body portion are the best proof of this assertion, as they must have been placed therein during the jointure of the vase, before the firing process (see Fig. 4, Plate XVIII, where a section of this vase is given, showing the position of the clay balls between the plates of earthenware that form the body). It will be seen that these two concave disks are united together and so fashioned as to leave a space within, into which the pellets of clay were placed. There is no connection between the body part and legs except by delicate perforations about the size of a pin's head, leading from the body into the legs. The legs, in their turn, are perforated by small holes of a like kind, thus allowing the heated vapors to escape during the firing. The theory advanced by certain writers that the clay balls in the interiors of the Mexican Jacaxtli (and other hollow terra-cottas) were detached by a sharp cutting tool, after the firing, is an absurdity which no careful student of aboriginal American plastic art will credit.

not belong to it. Some of its members desire to make it a school for teaching science to the young, a function which does not belong to an academy of sciences, but to a university or other school. That the primary object of the academy has always been original research, is well known; and that it is the desire of most of the scientific specialists connected with it that it should be devoted to that purpose, is undoubted. Instruction to post-graduates might be given in connection with its laboratories of research, but not to such an extent as to interfere with the main object.

The inaugural address of Professor Sharp was a clear exposition of the methods employed in some of the continental laboratories, and furnished an outline for work to be done in his own department, invertebrate zoölogy, in the academy.

One reason for introducing this institution so frequently to the notice of our readers is, that it is representative of the average local American "Academy of Sciences." If these institutions are ever to resemble their prototypes of the old world, it will have to be by a process of growth something like that which the oldest academy in the country is undergoing. They will have to pass from the club stage to the working stage, and self-preservation will require a third more or less exclusive stage. The obstacles to be overcome will be very similar everywhere.

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RECENT LITERATURE.

DUTTON'S TERTIARY HISTORY OF THE GRAND CANON DISTRICT.[1] —This elaborate monograph on perhaps the most imposing gorge in the world, has been thoroughly well done and superbly illustrated. The author gives a rapid summary in the twelfth chapter of the changes which have taken place and have produced the present wonderful scenic features of this region. Before the Carboniferous period thick beds of Silurian and thinner deposits of Devonian sediments were laid down, though a guess whence they were derived is not hazarded. The region was then upheaved, enormously eroded and again submerged. Upon the eroded surface the Carboniferous rocks were unconformably deposited, and the deposition of sediment was continued until the end of the Mesozoic, resulting in the accumulation of from 12,000 to 16,000 feet of strata over the entire Plateau province. The Carboniferous deposits may have accumulated in an ocean of

[1] *United States Geological Survey.* J. W. POWELL, director. Tertiary History of the Grand Cañon district, with atlas. By Captain CLARENCE E. DUTTON, U. S. A. Washington, Government Printing Office, 1882. 4to, pp. 264.